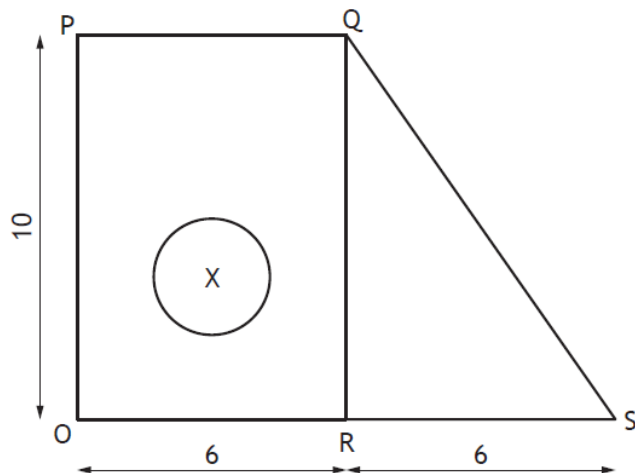


# Centre of Mass

2016 SP

12.



A uniform lamina is made from a rectangle  $OPQR$  and a right-angled triangle  $RQS$ . A circular hole of radius 1 cm is removed as shown in the diagram. The centre  $X$  of the circular hole is 3 cm from both  $OS$  and  $OP$ .

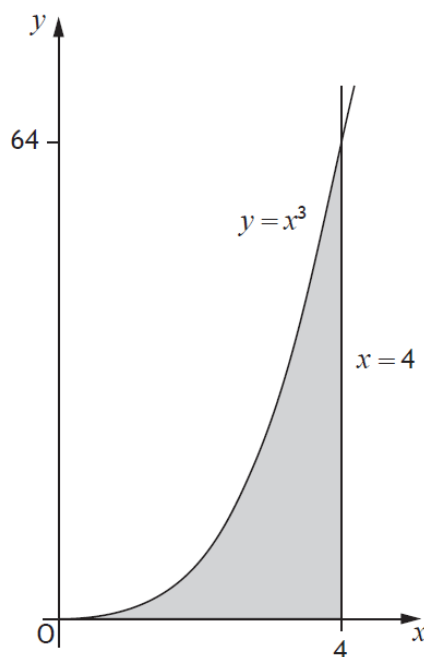
- Taking  $O$  as the origin, find the coordinates of the centre of mass of the lamina.
- When the lamina is suspended from a point  $T$  on  $OP$ , it hangs in equilibrium with  $OS$  vertical. Give the length of  $OT$ .

5

1

2016

11. A uniform lamina is bounded by the curve  $y=x^3$ , the line  $x=4$  and the  $x$ -axis.



Find the coordinates of the centre of mass of the lamina.

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